



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

D5415-3

Job Sheet 193390



Part No: D5415-3

Job Qty: 2 pcs

Part Name: STD Height Saddle



Part Weight: 0 lbs

Job Created: 4/12/19

Due Date: 4/15/19

Type: Stock

POSITIVE RECALLEFFECTIVE APR 11 AUTH PD

Status: New

RELEASED 9-29DATE 19-04-22

Priority: Medium

Job Tracking No:

Created By: Patrick Lussler

Description:

Note: D5415 REV.D IPP REV:A 16.09.16 NEW ISSUE DD VERF:JFS IPP REV:B 18.09.18 AS PER DWG REV.C DD
VERF:JFS IPP REV:C 19.02.15 NOW OUTSOURCE MACHINE DD VERF:JFS

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard Setup Hrs	Run Hrs	Workcenter/Supplier	Lead Time	Sign-off
100	Purchasing	2 pcs	4/15/19	4/15/19	0.00	0.00	Purchasing - 1		
							Purchasing - 2		
							Purchasing - 3		
110	Packaging 2-1 - Receive - B4B	2 pcs	4/15/19	4/15/19	0.00	0.00	Packaging 2 - 1 - B4B		DP APR 15 2019
							Packaging 2 - 2 - B4B		
							Packaging 2 - 3 - B4B		
							Packaging 2 - 5 - B4B		
							Packaging 2 - 4 - B4B		
							Packaging 2 - 6 - B4B		
							Packaging 2 - 7 - B4B		
							Packaging 2 - 8 - B4B		
							Packaging 2 - 9 - B4B		
							Packaging 2 - 10 - B4B		
							Packaging 2 - 11 - B4B		
							Packaging 2 - 12 - B4B		
							Packaging 2 - 13 - B4B		DP APR 15 2019
							Packaging 2 - 14 - B4B		
							Packaging 2 - 15 - B4B		
							Packaging 2 - 16 - B4B		
							Packaging 2 - 17 - B4B		
							Packaging 2 - 18 - B4B		
							Packaging 2 - 19 - B4B		
							Packaging 2 - 20 - B4B		
							Packaging 2 - 21 - B4B		
							Packaging 2 - 22 - B4B		
							Packaging 2 - 23 - B4B		
							Packaging 2 - 24 - B4B		
							Packaging 2 - 25 - B4B		
							Packaging 2 - 26 - B4B		
							Packaging 2 - 27 - B4B		



Container No: S172526



Part: D5415-3

Job No: 193390

Serial No/Batch: S172526

Revision: D

Inspector:

Exp Date:

Instructions: Various STC's

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Date: 04/15/19

Plex 4/12/19 3:06 PM dart.Lussler.Patrick

					Packaging 2 - 28 - B4B	
					Packaging 2 - 29 - B4B	
					Packaging 2 - 30 - B4B	
					Packaging 2 - 31 - B4B	
					Packaging 2 - 32 - B4B	
					Packaging 2 - 33 - B4B	
					Packaging 2 - 34 - B4B	
					Packaging 2 - 35 - B4B	
					Packaging 2 - 36 - B4B	
111 QC 6	2 pcs	4/15/19	0.00	0.00	QC 6 - 9	DAS APR 16 2019 68 9-89
					QC 6 - 68	
					QC 6 - 61	
120 Handfinish - 1-1 Chemical-B4B	2 pcs	4/15/19	0.00	0.20	Handfinish - 1 - 1 - B4B	
					Handfinish - 1 - 2 - B4B	
					Handfinish - 1 - 3 - B4B	
					Handfinish - 1 - 4 - B4B	
					Handfinish - 1 - 5 - B4B	
					Handfinish - 1 - 6 - B4B	
					Handfinish - 1 - 7 - B4B	
					Handfinish - 1 - 8 - B4B	
					Handfinish - 1 - 9 - B4B	
					Handfinish - 1 - 10 - B4B	D.R.19/04/16
					Handfinish - 1 - 11 - B4B	
					Handfinish - 1 - 12 - B4B	
					Handfinish - 1 - 13 - B4B	
					Handfinish - 1 - 14 - B4B	
					Handfinish - 1 - 15 - B4B	
					Handfinish - 1 - 16 - B4B	
					Handfinish - 1 - 17 - B4B	
					Handfinish - 1 - 18 - B4B	
					Handfinish - 1 - 19 - B4B	
					Handfinish - 1 - 20 - B4B	
					Handfinish - 1 - 21 - B4B	
					Handfinish - 1 - 22 - B4B	
130 QC 7	2 pcs	4/15/19	0.00	0.00	QC 7 - 10	
					QC 7 - 13	
					QC 7 - 14	
					QC 7 - 15	
					QC 7 - 17	
					QC 7 - 18	
					QC 7 - 19	
					QC 7 - 2	
					QC 7 - 28	
					QC 7 - 3	
					QC 7 - 30	
					QC 7 - 34	
					QC 7 - 36	
					QC 7 - 37	

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				QC 7 - 41	AB 19-4-17
				QC 7 - 47	
				QC 7 - 48	
				QC 7 - 51	
				QC 7 - 58	
				QC 7 - 59	
				QC 7 - 60	
				QC 7 - 9	
				QC 7 - 68	
				QC 7 - 50	
				QC 7 - 67	
				QC 7 - 40	
135 Spray Paint - 2 - B4B	2 pcs	4/15/19	0.00 0.50	Spray Paint - 1 - B4B	RD 19-4-17
				Spray Paint - 2 - B4B	
				Spray Paint - 3 - B4B	
				Spray Paint - 4 - B4B	
140 QC 14	2 pcs	4/15/19	0.00 0.00	QC 14 - 15	
				QC 14 - 2	
				QC 14 - 34	
				QC 14 - 41	
				QC 14 - 51	
				QC 14 - 58	
				QC 14 - 59	
				QC 14 - 9	
				QC 14 - 68	
				QC 14 - 40	APR 23 2019
				QC 14 - 19	DAS 40 9-89
150 Packaging 3-1 - Stock - B4B	2 pcs	4/15/19	0.00 0.00	Packaging 3 - 1 - B4B	
				Packaging 3 - 2 - B4B	
				Packaging 3 - 3 - B4B	
				Packaging 3 - 4 - B4B	
				Packaging 3 - 5 - B4B	
				Packaging 3 - 6 - B4B	DAS
				Packaging 3 - 7 - B4B	28
				Packaging 3 - 8 - B4B	9-89
				Packaging 3 - 9 - B4B	
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	

POSITIVE
RECALL

waiting on missing
paperwork.
PD 19-04-16
Release 19-04-22 PD.

				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	
				Packaging 3 - 36 - B4B	
190 QC 21 - SA	2 pcs	4/15/19	0.00 0.00	QC 21 - SA - 21	APR 23 2019
				QC 21 - SA - 70	
				QC 21 - SA - 53	

Part Op 100 - Issue P/O: 042148 Manufacture D5415-3 as per Dwg D5415 Possible supplier : ETM Industries Material

Descriptions: release note is required.

110 - (Receive & Inspect for Damage & Mat'l Certs)

111 - (QC6- All purchased or subcontracted products)

135 - PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2.1.3.3 (FLOAT SKIDTUBE PRIMER) 5152590

Batch: _____ PAINT OUTSIDE PER DART QSI 005 4.2.2.4 (FLOAT SKIDTUBE PAINT) 5155827

Batch: _____

150 - (Identify as per dwg & Stock Location: _____)

190 - (QC21- Final Inspection - Work Order Release)

x2 *Illuso*

Job BOM				
Part / Item	Component Name	Quantity	Operation	Container
D5415-3P	STD Height Saddle	2 pcs (1 ea)	100-Purchasing	<u>5172523</u>

Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
100-Purchasing	D5415-3P	2	0	0

Part Specifications	
Specifications could not be found.	

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Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

PO042148



Supplier: ETM001-VC
E.T.M. Industries Inc.
310 Hall Avenue, Box 610
Renfrew
ON
K7V 4E7 Canada
Phone: 613-432-6136
Fax: 613-432-8212

PO No: PO042148
PO Date: 1/3/19
Due Date: 7/3/19
Purchase Order Revision:
Revision Date:

Ship-To Contact: Phone:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments:

Revision

Items													
Line Item	Job	Part	Supplier Part No	Item No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	193389	D5415-1P			Mid Height Saddle : Various STC's	Firmed	-	4/15/19	2 Ea	0 Ea	2 Ea	\$975.00/Ea	\$1,950.00
FIRST ARTICLE INSPECTION BY DART QTY OF 1 BEFORE TOTAL PRODUCTION (MATERIAL 7050-T7451 OR T7651)													
2 first units No Alodine , No Paint													
2	193390	D5415-3P			STD Height Saddle : Various STC's	Firmed	-	4/15/19	2 pcs	0 pcs	2 pcs	\$975.00/pcs	\$1,950.00
FIRST ARTICLE INSPECTION BY DART QTY OF 1 BEFORE TOTAL PRODUCTION (MATERIAL 7050-T7451 OR T7651)													
2 first units No Alodine , No Paint													
Grand Total:												\$3,900.00	

Order Notes

Procurement Quality Clauses

A005 RIGHT OF ENTRY

A008 FIRST ARTICLE INSPECTION (FAI) BY SELLER, (DOCUMENTATION SENT TO DART AEROSPACE)

A012 CHEMICAL AND PHYSICAL TEST REPORTS

A016 PERSONNEL QUALIFICATION

A017 RAW MATERIAL IDENTIFICATION (AS APPLICABLE)

A026 CERTIFICATION OF MATERIAL CONFORMANCE

A041 QUALITY MANAGEMENT SYSTEM

A042 DART NOTIFICATION BY SUPPLIER

A043 RETENTION OF QUALITY DOCUMENT

A048 COUNTERFEIT PARTS AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION PROGRAM

A049 SUPPLIER AWARENESS

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 4/15/19 12:52 PM dart.Lussier.Patrick

ETM INDUSTRIES INC.

E.T.M. INDUSTRIES INC.
310 HALL AVENUE
BOX 610
RENFREW, ON K7V 4E7
Canada

Ph: 613-432-6136

Fax: 613-432-8212

Pack List

Number: 142272

Date: 12-Apr-19

To

DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7
Canada

Ship To

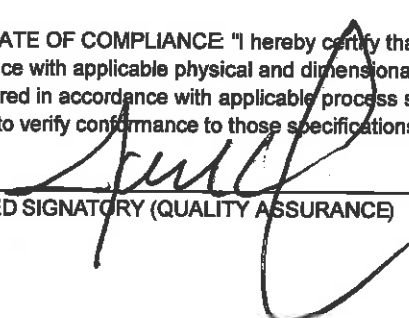
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7
Canada

Ph: 613-632-5200

Fax: 613-632-5246

Ph: 613-632-5200

Fax: 613-632-5246

Terms		Ship Via	
Net 30 days			
Quantity	Description		
2 each	Part: D5415-3P STD HEIGHT SADDLE:VARIOUS STC SO: 25055 Ordered: 9 **LOT #105812 **PARTS ARE MACHINED ONLY**	Rev: C PO: PO042148 Backordered: 7	Line: 005 DAS 68 9-89
CERTIFICATE OF COMPLIANCE "I hereby certify that the material described above is in conformance with applicable physical and dimensional specifications; that it was manufactured in accordance with applicable process specifications; and has been inspected to verify conformance to those specifications."  APPROVED SIGNATORY (QUALITY ASSURANCE)			

Entered:

Date:

NCR No.

19-7211

WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

Route update only



Job: 193390		DISPOSITION		DEPARTMENT/PROCESS		Engineering	
Part No. D5415-3		Rework ☐ Scrap ☐ Use-as-is ☒		Cross tube ☐ Small Fab ☐ Finishing ☒		☒ Water Jet ☐ Supplier ☐ Quality	
Date: 23 avril	Sequence #: 135	QTY Affected: 2		MRB (QSI042)		Completed By: AB 19-4-17	
Description Work Order Deviation		Disposition		Lead hand / Supervisor		QC / QA Coordinator	
D5415 Rev.D calls for prime all surfaces, paint outside only. This will either require extending the time in finishing or accepting overspray on inside surfaces.		Acceptable to prime and paint all surfaces. This enhances protection and matches the finish of the saddle used in testing (no fit issues).		D 19.04.23		D 19.04.23	
Root Cause		FAULT CATEGORY		Positioned Wrong		Outside Tolerance	
Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☒ Human Factors ☐		Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐		Drawing ☐ Finish ☒ Part Lost/Missing ☐ Misread ☐	
Other/Details:							

ETM Industries Inc

Page 1 of 8

AS9102 Revision B First Article Inspection

Form 1: Part Number Accountability

1. Part Number D5415-3	2. Part Name STANDARD HEIGHT SADDLE	3. Serial Number N/A	4. FAI Number N/A
5. Part Revision Level REV.D	6. Drawing Number D5415-3	7. Drawing Revision Level REV.C	8. Additional Changes N/A
9. Manufacturing Process Reference 105812	10. Organization Name ETM Industries Inc.	11. Supplier Code N/A	12. P.O. Number PO 042148 LN.4
13. Detail FAI ☒	14. Full FAI Partial FAI ☒ ☐	Baseline Part Number including Revision Level	
Assembly FAI ☐	Reason for Partial FAI: Not Applicable		N/A
a) If above part number is a detail part only, go to Field 19 b) If above part number is an assembly, go to the "Index" section below.			
INDEX of part numbers or sub assembly numbers required to make the assembly noted above.			
15. Part Number	16. Part Name	17. Part Serial Number	18. FAI Report Number
N/A	N/A	N/A	N/A

1) Signature indicates that all characteristics are accounted for; meet drawing requirements or are properly documented for disposition.	
2) Also indicate if the FAI is complete per Section 5.4: ☒ FAI Complete ☐ FAI Not Complete	
19. Signature BARRY DUPUIS	20. Date 4/11/19
21. Reviewed by	22. Date
23. Customer Approval	24. Date

AS9102 Revision B First Article Inspection

Form 2: Product Accountability – Raw Material, Specifications and Special Process(es),
Functional Testing

1. Part Number D5415-3	2. Part Name STANDARD HEIGHT SADDLE		3. Serial Number N/A		4. FAI Report Number N/A
5. Material or Process – Name	6. Specification Number	7. Code	8. Special Process Supplier Code	9. Customer Approval Verification (Yes/No/N/A)	10. Certificate of Conformance Number
MAKE FROM D5415-1C/-3C	7050- T7451 PER AMS 4050 OR- T7651 PER AMS 4201 ALUMINUM PLATE	N/A	N/A	N/A	CONSTELLUM LOT # 9444753 LOT # 9418314
CHEM FILM	CHEMICAL CONVERSION COAT PER DART QSI 005 4.1				
PRIME PER DART QSI 005 4.2.1.3.3	FLOAT SKID TUBE PRIMER "GREEN"	N/A	N/A	N/A	
PRIME PER DART QSI 005 4.2.2.4	FLOAT SKID TUBE PAINT "WHITE"	N/A	N/A	N/A	
11. Functional Test Procedure Number	12. Acceptance report number, if applicable				
Not Applicable	Not Applicable				
13. Comments					
14. Prepared By BARRY DUPUIS			15. Date 4/11/19		

ETM Industries Inc

AS9102 Revision B First Article Inspection
Form 3: Characteristic Accountability, Verification and Compatibility Evaluation

Page 3 of 8

1. Part Number D5415-3		2. Part Name STANDARD HEIGHT SADDLE		3. Serial Number N/A		4. FAI Report N/A	
Characteristic Accountability				Inspection / Test Results			
5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designated Tooling	11. Non Conformance Number	14. Reference Documents
1	SHT1	N/A	MAKE FROM D5415-1C/-3C. 7050-T7451 PER AMS 4050 OR-T7651 PER AMS 4201 ALUMINUM PLATE	ACCEPT	CONSTELLUM LOT # 9444753 LOT # 9418314	N/A	N/A
2	SHT1	N/A	FINISH: PRIME: INSIDE AND OUTSIDE PER DART QSI 005 4.2.1.3.3 (FLOAT SKIDTUBE PRIMER, GREEN) PAINT: OUTSIDE PER DART QSI 005 4.2.2.4 (FLOAT SKID TUBE PAINT WHITE)			N/A	N/A
3	SHT1	N/A	TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED	ACCEPT	VERIFY	N/A	N/A
4	SHT1	N/A	UNITS: INCHES UNLESS OTHERWISE NOTED	ACCEPT	VERIFY	N/A	N/A
5	SHT1	N/A	BREAK SHARP EDGES	N/A	N/A	N/A	N/A
6	SHT1	N/A	IDENTIFICATION: DART P/N "D415-1" OR "D415-3" AND S/N PER QSI044 6.4 (VIBRATING STYLUS) PRIOR TO FINISH. DART P/N "D415-1" OR "D415-3" AND S/N PER QSI044 6.4 (PAINT MARKER) AFTER FINISH. LOCATE APPROX AS SHOWN.	ACCEPT	VERIFY	N/A	N/A
7	SHT1	N/A	WEIGHT: D5415-1 IS 3.72 LBS., D5415-3 IS 3.42 LBS.	3.62 LBS. UNFINISHED	KCS 301 DIGITAL SCALE	N/A	N/A
The signature indicates that all characteristics are accounted for; meet drawing requirements or are properly documented for disposition.							
12. Prepared By BARRY DUPUIS						13. Date 4/11/19	

ETM Industries Inc

AS9102 Revision B First Article Inspection

Form 3: Characteristic Accountability, Verification and Compatibility Evaluation

Page 4 of 8

1. Part Number D5415-3		2. Part Name STANDARD HEIGHT SADDLE		3. Serial Number N/A		4. FAI Report N/A	
Characteristic Accountability				Inspection / Test Results			
5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designated Tooling	11. Non Conformance Number	14. Reference Documents
8	SHT1	N/A	MASK HOLES PRIOR TO PRIME AND PAINT			N/A	N/A
9	SHT2	N/A	1) MATERIAL: MACHINE FROM ALUMINUM PLATE 7050- T7451 PER AMS 4050 OR-T7651 PER AMS 4201 REF DART SPEC. M7050P	ACCEPT	CONSTELLUM LOT # 9444753 LOT # 9418314	N/A	N/A
10	SHT2	N/A	FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1			N/A	N/A
11	SHT2	N/A	TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED	ACCEPT	VERIFY	N/A	N/A
12	SHT2	N/A	UNITS: INCHES UNLESS OTHERWISE NOTED	ACCEPT	VERIFY	N/A	N/A
13	SHT2	N/A	BREAK SHARP EDGES: 0.005 TO 0.010 MAX. IDENTIFICATION: DART LOGO RAISED ABOVE SURFACE AS SHOWN, MAX 0.015 TOOL RAD. WEIGHT :N/A	ACCEPT	VERIFY	N/A	N/A
14	SHT2	N/A		N/A	N/A	N/A	N/A
15	SHT2	N/A	NO COSMETIC WELD REPAIR ALLOWED IF MACHINED FROM 7050 PLATE	ACCEPT	VERIFY	N/A	N/A
16	SHT2	N/A	NO X-RAY OR FPI REQUIRED IF MACHINED FROM 7050 PLATE	ACCEPT	VERIFY	N/A	N/A
17	SHT2	N/A	ALL NON DIMENSIONED FEATURES MUST MAINTAIN A TOLERANCE OF +/- 0.030 PER CAD FILE D5415-1 REV D.STP	ACCEPT	VERIFY	N/A	N/A
				ACCEPT	VERIFY	N/A	N/A

The signature indicates that all characteristics are accounted for; meet drawing requirements or are properly documented for disposition.

12. Prepared By

BARRY DUPUIS

13. Date

4/11/19

ETM Industries Inc

AS9102 Revision B First Article Inspection

Form 3: Characteristic Accountability, Verification and Compatibility Evaluation

Page 5 of 8

1. Part Number D5415-3		2. Part Name STANDARD HEIGHT SADDLE		3. Serial Number N/A		4. FAI Report N/A	
Characteristic Accountability				Inspection / Test Results			
5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designated Tooling	11. Non Conformance Number	14. Reference Documents
18	SHT2	N/A	ANY ADDITIONAL MATERIAL REQUIRED FOR POST CASTING MACHINING IS NOT SPECIFIED ON THIS DRAWING.	ACCEPT	VERIFY	N/A	N/A
19	SHT2	N/A	R0.10+/-0.030 2PL.	0.094	RAD. GAUGE	N/A	N/A
20	SHT2	N/A	1.00 +/-0.030	1.005	HEIGHT GAUGE	N/A	N/A
21	SHT2	N/A	0.100 +/-0.010	0.101	HEIGHT GAUGE	N/A	N/A
22	SHT2	N/A	R 1.790 +/-0.010	1.786	HEIGHT GAUGE	N/A	N/A
23	SHT2	N/A	6.54 +/-0.030	6.533	HEIGHT GAUGE	N/A	N/A
24	SHT2	N/A	1.19 +/-0.030	1.195	HEIGHT GAUGE	N/A	N/A
25	SHT2	N/A	4.33 +/-0.030	4.335	HEIGHT GAUGE	N/A	N/A
26	SHT2	N/A	2.14 +/-0.030	2.137	HEIGHT GAUGE	N/A	N/A
27	SHT2	N/A	R1.0 +/-0.100	1.0	RAD. GAUGE	N/A	N/A
28	SHT2	N/A	R1.0 +/-0.100	1.0	RAD. GAUGE	N/A	N/A
29	SHT2	N/A	75 DEG. +/-1/2 DEG.	75 DEG.	OPTICAL COMPARATOR	N/A	N/A
30	SHT2	N/A	0.39 +/-0.030	0.386	CALIPERS	N/A	N/A
The signature indicates that all characteristics are accounted for; meet drawing requirements or are properly documented for disposition.							
12. Prepared By BARRY DUPUIS						13. Date 4/11/19	

ETM Industries Inc**AS9102 Revision B First Article Inspection
Form 3: Characteristic Accountability, Verification and Compatibility Evaluation**

Page 6 of 8

1. Part Number		2. Part Name		3. Serial Number		4. FAI Report	
D5415-3		STANDARD HEIGHT SADDLE		N/A		N/A	
Characteristic Accountability				Inspection / Test Results			
5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designated Tooling	11. Non Conformance Number	14. Reference Documents
31	SHT2	N/A	0.280 MINIMUM WALL THICKNESS THROUGH TRANSITION	0.290	DIAL CALIPERS	N/A	N/A
32	SHT2	N/A	0.36 +/-0.030	0.365	DIAL CALIPERS	N/A	N/A
33	SHT2	N/A	R0.063 +/-0.010 TYP	0.0625	RAD. GAUGE	N/A	N/A
34	SHT2	N/A	3.10 +/-0.030	3.102	HEIGHT GAUGE	N/A	N/A
35	SHT2	N/A	4.80 +/-0.030	4.803	HEIGHT GAUGE	N/A	N/A
36	SHT2	N/A	12.86 +/-0.030	12.856	HEIGHT GAUGE	N/A	N/A
37	SHT4	N/A	0.323 +/-0.010 DIA	0.322	GAUGE PIN	N/A	N/A
38	SHT4	N/A	4.10 +/-0.030	4.098	HEIGHT GAUGE	N/A	N/A
39	SHT4	N/A	2.715 +/-0.005	2.714	HEIGHT GAUGE	N/A	N/A
40	SHT4	N/A	3.54 +/-0.030	3.535	HEIGHT GAUGE	N/A	N/A
41	SHT4	N/A	1.96 +/-0.030	1.957	HEIGHT GAUGE	N/A	N/A
42	SHT4	N/A	1.69 +/-0.030	1.687	HEIGHT GAUGE	N/A	N/A
43	SHT4	N/A	4.32 +/-0.030	4.3195	HEIGHT GAUGE	N/A	N/A

The signature indicates that all characteristics are accounted for; meet drawing requirements or are properly documented for disposition.

12. Prepared By

BARRY DUPUIS

13. Date

4/11/19

ETM Industries Inc

AS9102 Revision B First Article Inspection

Form 3: Characteristic Accountability, Verification and Compatibility Evaluation

Page 7 of 8

1. Part Number		2. Part Name		3. Serial Number		4. FAI Report	
D5415-3		STANDARD HEIGHT SADDLE		N/A		N/A	
Characteristic Accountability				Inspection / Test Results			
5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designated Tooling	11. Non Conformance Number	14. Reference Documents
44	SHT4	N/A	3.580 +/-0.010 DIA.	3.5785	CALIPERS	N/A	N/A
45	SHT4	N/A	CHAMFER 0.03 +/-0.030 X 45 DEG. TYP.	N/A	HEIGHT GAUGE	N/A	N/A
46	SHT4	N/A	R0.06 +/-0.030	0.062	RAD GAUGE	N/A	N/A
47	SHT4	N/A	0.250 +/-0.015	0.251	DIAL CALIPERS	N/A	N/A
48	SHT4	N/A	2.30 +/-0.030	2.295	HEIGHT GAUGE	N/A	N/A
49	SHT4	N/A	0.516 +/-0.010 DIA.	0.515	GAUGE PIN	N/A	N/A
50	SHT4	N/A	58 +/-1/2 DEG.	58 DEG.	PROTRACTOR	N/A	N/A
51	SHT4	N/A	20 +/-1/2 DEG.	20 DEG	PROTRACTOR	N/A	N/A
52	SHT4	N/A	R0.50 +/-0.030 2 PL.	0.500	RAD GAUGE	N/A	N/A
53	SHT4	N/A	R0.40 +/-0.030 2PL.	0.406	RAD GAUGE	N/A	N/A
54	SHT4	N/A	3.85 +/-0.030	3.848	CALIPERS	N/A	N/A
55	SHT4	N/A	0.200 +/-0.015 RIB THICKNESS, TYP.	0.199	CALIPERS	N/A	N/A
56	SHT4	N/A	0.60 +/-0.010 DIA.	0.600	GAUGE PIN	N/A	N/A

The signature indicates that all characteristics are accounted for; meet drawing requirements or are properly documented for disposition.

12. Prepared By

BARRY DUPUIS

13. Date

4/11/19

ETM Industries Inc

AS9102 Revision B First Article Inspection

Form 3: Characteristic Accountability, Verification and Compatibility Evaluation

Page 8 of 8

1. Part Number D5415-3		2. Part Name STANDARD HEIGHT SADDLE		3. Serial Number N/A	4. FAI Report N/A	
Characteristic Accountability				Inspection / Test Results		
5. Char. No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designated Tooling	11. Non Conformance Number
57	SHT4	N/A	0.719+/-0.01DIA	0.720	BORE MIC.	N/A
58	SHT4	N/A	0.265 +/-0.015	0.270	DIAL CALIPERS	N/A
						14. Reference Documents
						N/A
						N/A

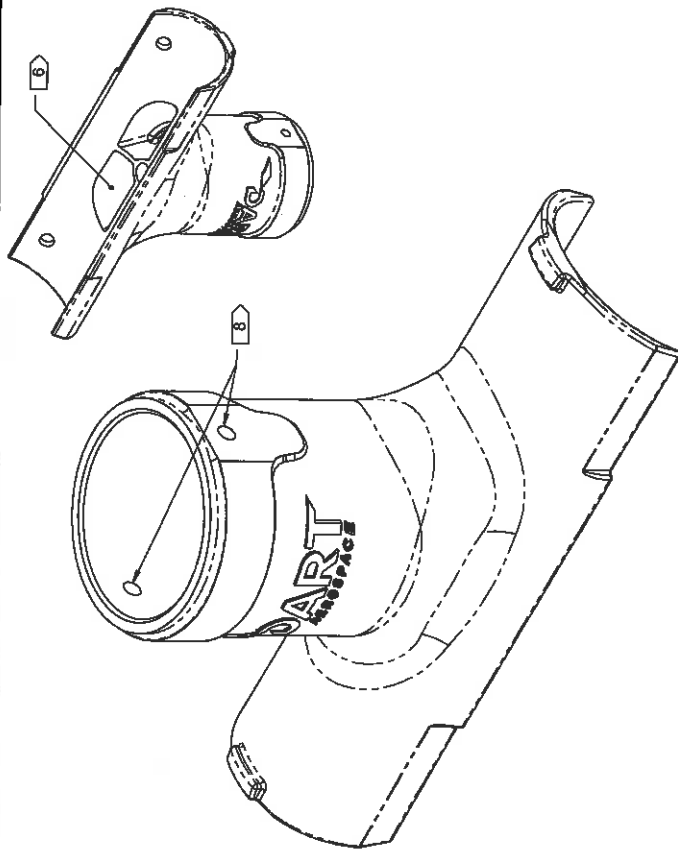
The signature indicates that all characteristics are accounted for; meet drawing requirements or are properly documented for disposition.

12. Prepared By

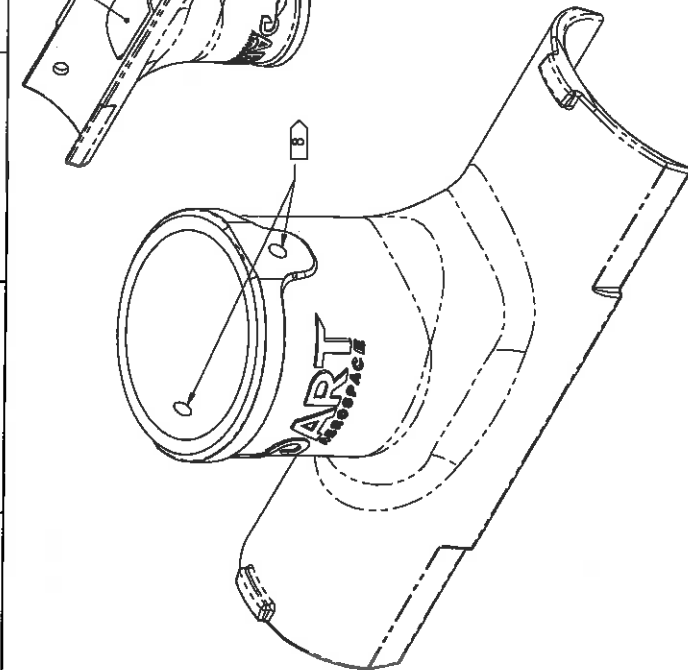
BARRY DUPUIS

13. Date

4/11/19



D5415-1 MID HEIGHT SADDLE



D5415-3 STANDARD HEIGHT SADDLE

CONTROLLED COPY

[illegible]

245-11 NCB
91 03-1 01-02

ECN 17-543

NOTES:

- NOTES:
- 1) MATERIAL: MAKE FROM D5415-1/CI-3C
 - 2) FINISH: PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2, 1.3.3 (FLOAT SKIDTUBE PRIMER)
PAINT OUTSIDE PER DART QSI 005 4.2.2.4 (FLOAT SKIDTUBE PAINT)
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: N/A
 - 6) IDENTIFICATION: DART PN "D5415-1" OR "D515-3" AND SN PER QSI 044 6.4 (VIBRATING STYLUS) PRIOR TO FINISH
DART PN "D5415-1" OR "D515-3" AND SN PER QSI 044 6.1 (PAINT MARKER) AFTER FINISH
 - 7) WEIGHT: D5415-1 is 3.72 LBS, D5415-3 is 3.42 LBS
 - 8) MASK HOLES PRIOR TO PRIME AND PAINT

APPROVED

D	ADDED 7050 ALUMINUM PLATE AS ALTERNATE MATERIAL FOR 110-3C	ZF	19.01.28
C	REDESIGNED SADDLE ALIGNMENT METHOD (DOWNSIDE) INTO CASTING SHEET 11. REVISED NO. B SHEET 4. 3.595 WAS 3.550. 2.715 WAS 2.700.	MW	19.08.29
B	ADDED .3 STANDARD HEIGHT SADDLE. REVISED NOTES, REMOVED CAST PIN FROM .1 SADDLE. 20.9321 WAS 20.3325; SECTION B-B AND D-D 10.005 WAS 10.010	ML	17.08.05
A	NEW ISSUE	ML	19.05.17
DESIGN	ML	BY	DATE
DRAWN	ZF		
CHECKED	MW		
MFG. APPR.	RQ		
APPROVED	NO		
DE APPR.	CP		
DATE	19.01.28		

DART AEROSPACE LTD
 HAWKESBURY, ONTARIO, CANADA

DRAWING NO.
D5415

REV. D
 SHEET 1 OF 4

SCALE
 NTS

CONFORMANT & DRAW BY: DART AEROSPACE LTD
 THIS DOCUMENT IS ISSUED IN ACCORDANCE WITH THE CANADIAN STANDARDS ASSOCIATION (CSA) STANDARD Z39.1-1985 (CAN 283-1985) FOR THE DESIGN OF MECHANICAL PARTS. IT IS THE POLICY OF DART AEROSPACE LTD TO CONFORM TO ALL APPLICABLE STANDARDS.

CONTROLLED COPY

D5415-1C MID HEIGHT SADDLE

NOTES:

- 1) MATERIAL: CAST FROM F357.0 PER AMS 4289 AND HEAT TREAT TO T6 CONDITION. PROPERTIES TO BE VERIFIED BY SUB-SIZED SEPARATELY CAST TEST BARS OR
 △ MACHINE FROM 7050-T7451 OR -T7651 ALUMINUM PLATE
 PER AMS 4050 (-T7451) OR AMS 4201 (-T7651)
 REF DART SPEC M7050P
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: DART LOGO RAISED ABOVE SURFACE AS SHOWN, MAX 0.015 TOOL RAD
- 7) WEIGHT: N/A
- 8) COSMETIC WELD REPAIR ALLOWED IF CAST FROM F357.0, REPAIR PER AMS 2894 PRIOR TO INSPECTION AND HEAT TREAT.
 NO COSMETIC WELD REPAIR ALLOWED IF MACHINED FROM 7050 PLATE
- 9) MANDATORY INSPECTION IF CAST FROM F357.0:
 EACH PART MUST PASS X-RAY CL. 1 GR. B PER AMS 2175
 EACH PART MUST PASS FPI CL. 1 GR. B PER AMS 2175
 NO X-RAY OR FPI REQUIRED IF MACHINED FROM 7050 PLATE
- 10) ALL NON DIMENSIONED FEATURES MUST MAINTAIN A TOLERANCE OF +/- 0.030 PER CAD FILE D5415-1-REV. D.STP
- 11) ANY ADDITIONAL MATERIAL REQUIRED FOR POST-CASTING MACHINING IS NOT SPECIFIED ON THIS DRAWING.

APPROVED

RELEASED

2019 FEB 15

DART AEROSPACE LTD
 HAWKESBURY, ONTARIO, CANADA

DRAWING NO. D5415

REV. D
 SHEET 2 OF 4

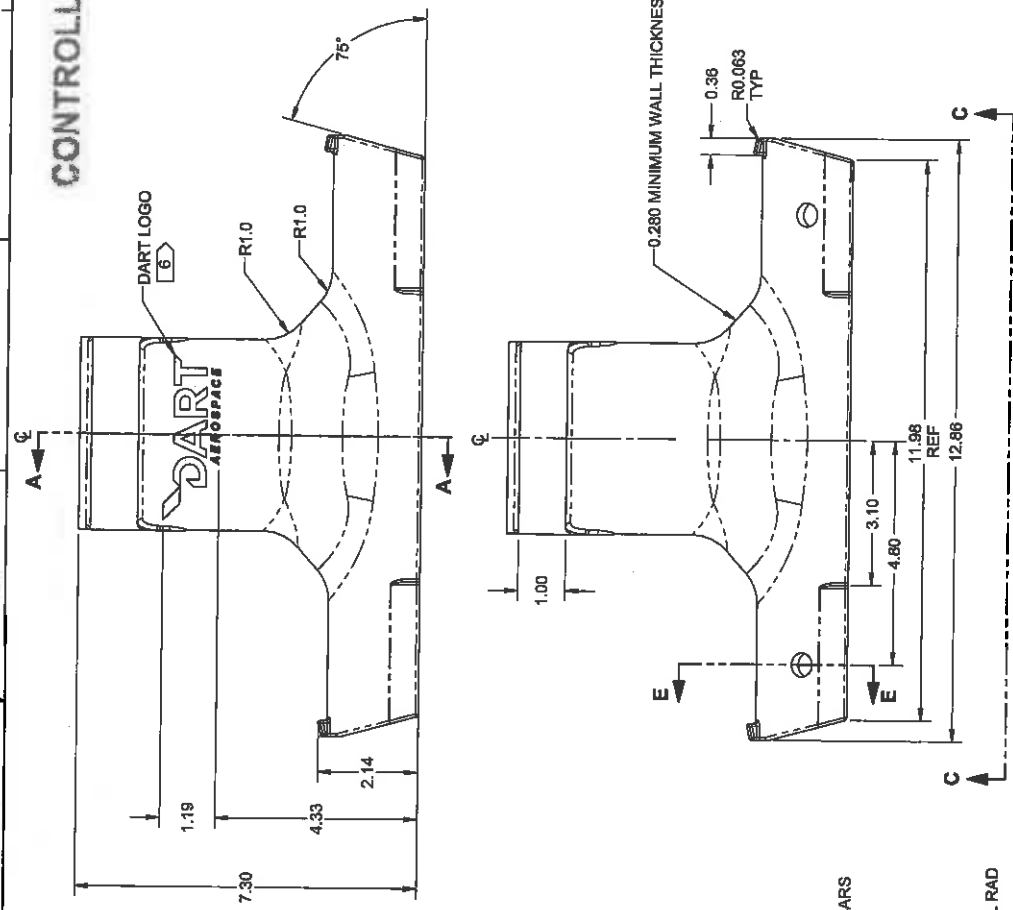
TITLE SADDLE

DATE 19.01.28

DESIGN ML
DRAWN ZF
CHECKED MW
MFG. APPR. RQ
APPROVED NO
DE APPR. CP

SCALE NTS

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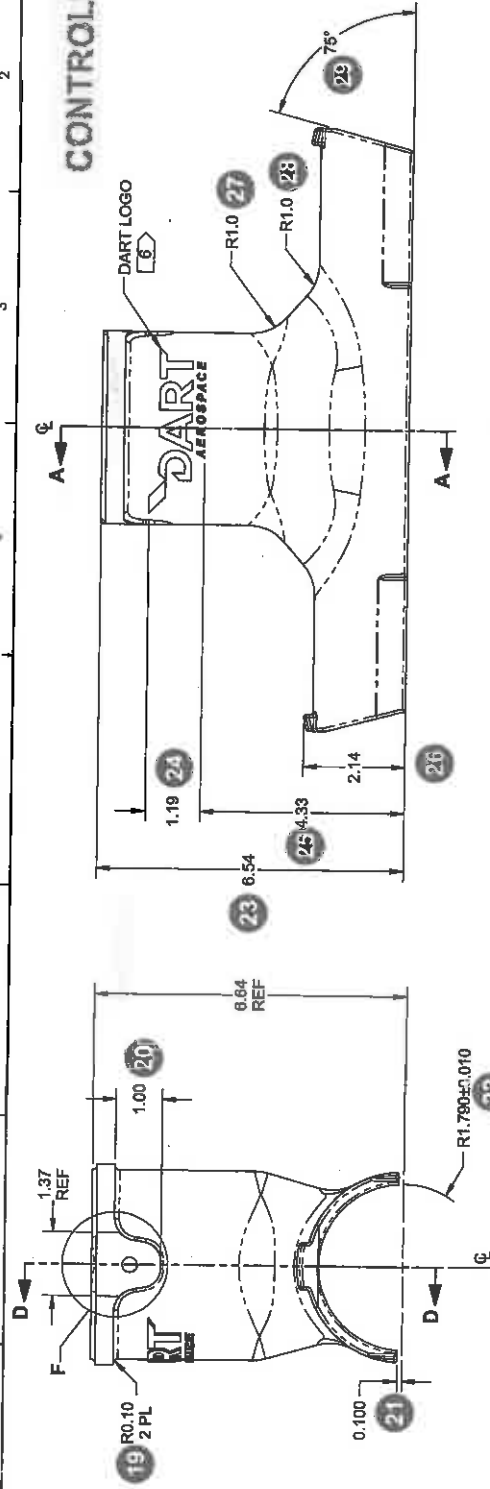
D5415-1C MID HEIGHT SADDLE

- NOTES:
- 1) MATERIAL: CAST FROM F357.0 PER AMS 42889 AND HEAT TREAT TO T6 CONDITION
PROPERTIES TO BE VERIFIED BY SUB-SIZED SEPARATELY CAST TEST BARS
- OR
-  MACHINE FROM 7050-T7451 OR -T7651 ALUMINUM PLATE
PER AMS 4050 (-T7451) OR AMS 4201 (-T7651)
REF PART SPEC M7050P
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: UNLESS OTHERWISE SPECIFIED, PER DART QSI 005 4.1
- 4) UNITS: INCHES, UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: DART LOGO PLACED ABOVE SURFACE AS SHOWN, MAX 0.015 TOOL RAD
- 7) WEIGHT: N/A
- 8) COSMETIC WELD REPAIR ALLOWED IF CAST FROM F357.0
REPAIR PER AMS 2894 PRIOR TO INSPECTION AND HEAT TREAT.
NO COSMETIC WELD REPAIR ALLOWED IF MACHINED FROM 7050 PLATE
- 9) MANDATORY INSPECTION IF CAST FROM F357.0:
EACH PART MUST PASS X-RAY C1, 1 GR. B PER AMS 2175
EACH PART MUST PASS FPI C1, 1 GR. B PER AMS 2175
- NO X-RAY OR FPI REQUIRED IF MACHINED FROM 7050 PLATE
- 10) ALL PART DIMENSIONS MUST MAINTAIN A TOLERANCE OF ± 0.030 PER
CAD FILE D5415-1-REV. D STP
- 11) ANY ADDITIONAL MATERIAL REQUIRED FOR POST-CASTING MACHINING IS
NOT SPECIFIED ON THIS DRAWING.

DESIGN	ML	DART AEROSPACE LTD	
DRAWN	ZF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	MW	DRAWING NO.	REV. D
MFG. APPR.	RQ	D5415	SHEET 2 OF 4
APPROVED	NO	TITLE	SCALE
DE APPR.	CP <i>CP</i>	SADDLE	NTS
DATE	19.01.28	COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND NOT BE LOANED, REPRODUCED OR COPIED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE LTD. ALL RIGHTS ARE RESERVED.	

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219 FEB 15 9

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D5415-3C STANDARD HEIGHT SADDLE

- NOTES:
- 1) MATERIAL: CAST FROM F357.0 PER AMS 4289 AND HEAT TREAT TO T8 CONDITION. PROPERTIES TO BE VERIFIED BY SUB-SIZED SEPARATELY CAST TEST BARS.
 - 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005.4.1 (10).
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED.
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
 - 6) IDENTIFICATION: DART LOGO RAISED ABOVE SURFACE AS SHOWN, MAX 0.025 TOOL RAD.
 - 7) WEIGHT: N/A.
 - 8) COSMETIC WELD REPAIR ALLOWED IF CAST FROM F357.0. REPAIR PER AMS 2864 PRIOR TO INSPECTION AND HEAT TREAT.
 - 9) NO COSMETIC WELD REPAIR ALLOWED IF MACHINED FROM 7050 PLATE.
 - 10) MANDATORY INSPECTION IF CAST FROM F357.0: EACH PART MUST PASS X-RAY CL. 1 GR. B PER AMS 2175.
 - 11) NO X-RAY OR FPI REQUIRED IF MACHINED FROM 7050 PLATE.
 - 12) ALL NON DIMENSIONED FEATURES MUST MAINTAIN A TOLERANCE OF ± 0.030 PER CAD FILE D5415-3-REV. D STP.
 - 13) ANY ADDITIONAL MATERIAL REQUIRED FOR POST-CASTING MACHINING IS NOT SPECIFIED ON THIS DRAWING.

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2010 FEB 15

APPROVED

DESIGN	ML	ZF	MM	RQ	NO	CP	DATE	19.01.28
DRAWN								
CHECKED								
MFG. APPR.								
APPROVED								
DATE								

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. **D5415**
REV. **D**
SHEET **3 OF 4**
TITLE **SADDLE**
SCALE **NTS**

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Constellium Rolled Products
Ravenswood, LLC

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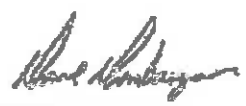
COPPER & BRASS SALES, INC.

5 STERLING DRIVE
WALLINGFORD CT
06492
US

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COPPER & BRASS SALES

PO BOX 5116
SOUTHFIELD MI
48086
US

COPPER&BR		110742733		2994F		INCLUSION		Serial:20190305-0110742733		Pg 2of4	
CUSTOMER PURCHASE ORDER NO. & ITEM 5400430916-R05						Constellium ORDER NO. 268528					
ALLOY 7050	CLAD	TEMPER T7451	GAUGE 4.50000 in 114.30 mm	WIDTH 60.50000 in 1,537 mm	LENGTH 144.50000 in 3,670 mm		CERTIFICATION "Constellium Rolled Products, hereby certifies that metal shipped under this order has been inspected and found in conformance with the requirements of the applicable specifications as indicated herein. Any warranty is limited to that shown on Constellium Rolled Products' standard General Terms and Conditions of Sales. Test reports are on file, subject to examination." Constellium Rolled Products Ravenswood, LLC 259 Century Road P.O. BOX 68 RAVENSWOOD, WV 26164 USA  Dave Dunbarger - Laboratory Manager				
ITEM ORDERED SPEC PLATE, SAWED MILL FINISH											
CUSTOMER SPECIFICATION BMS 7-323E TYPE I											
PART NUMBER ALFLR01070			B/L NUMBER 114339		DATE SHIPPED 03/05/2019						
WT. SHIPPED 8090.000 LB		NO. OF PIECES 000002		GOVT. CONTRACT NO. GLOBID							
Tensile - Room Temperature (SI)											
		Ultimate (N/MM2)		Yield (N/MM2)		Elongation (%)		Report			
Direction	Tests	Min	Max	Min	Max	Min	Max				
L	02	513	518	489	477	11.5	12.0				
LT	02	532	534	474	475	10.0	10.0				
ST	02	497	497	423	428	5.5	6.0				
Fatigue											
Minimum Fatigue: 300.0 KCycles Fatigue Log Average: 300.0 KCycles						Report: WM 20919001193					
FRACTURE TOUGHNESS (US)											
Direction		Result KSI (SQRT.IN.)									
L-T (KIC)		30.8									
S-L (KIC)		25.1									
T-L (KIC)		26.8									

POT# 113485.
105812
105813
105814
105810.

RECEIVED
MAR 26 2019

P-880-155D REVISED: 01 2018

From: TK Materials CA, Ltd.

Cust. E T M INDUSTRIES INC

CstAr 105812/3/4/5

Wgt.: 1,356.421 LB

Del.: 2406628801

CstOr 113485

Date 03/22/2019





Constellium Rolled Products
Ravenswood, LLC

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COPPER & BRASS SALES, INC.

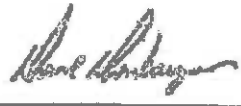
6 STERLING DRIVE
WALLINGFORD CT
06492
US

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COPPER & BRASS SALES

PO BOX 5116
SOUTHFIELD MI
48086
US

COPPER&BR		110742733		2894F		INCLUSION		Serial:20190305-0110742733		Pg 3of4	
CUSTOMER PURCHASE ORDER NO. & ITEM 5400430918-R05						Constellium ORDER NO. 289528					
ALLOY 7050	CLAD	TEMPER T7451	GAUGE 4.50000 in 114.30 mm	WIDTH 60.50000 in 1,537 mm	LENGTH 144.50000 in 3,670 mm	CERTIFICATION "Constellium Rolled Products, hereby certifies that metal shipped under this order has been inspected and found in conformance with the requirements of the applicable specifications as indicated herein. Any warranty is limited to that shown on Constellium Rolled Products' standard General Terms and Conditions of Sales. Test reports are on file, subject to examination." Constellium Rolled Products Ravenswood, LLC 859 Century Road P.O. BOX 85 RAVENSWOOD, WV 26164 USA  Dave Dunberger - Laboratory Manager					
ITEM ORDERED SPEC PLATE, SAWED MILL FINISH											
CUSTOMER SPECIFICATION BMS 7-323E TYPE I											
PART NUMBER ALFLR01070			B/L NUMBER 114339		DATE SHIPPED 03/05/2019						
WT. SHIPPED 8090.000 LB		NO. OF PIECES 000002		GOVT. CONTRACT NO. GLOBID							
FRACTURE TOUGHNESS (SI)											
Direction		Result MPa (SQRT.M.)									
L-T (KIC)		33									
S-L (KIC)		27									
T-L (KIC)		29									
STRESS CORROSION FACTOR NC28.4 SC27.9											
Conductivity % IACS MIN 40.5 MAX 40.8 % MS/M MIN 23.5 MAX 23.7											
Chemistry (Actual)											
	SI	FE	CU	MN	MG	CR	ZN	TI	ZR		
Core	0.05	0.07	2.17	0.00	2.09	0.00	6.15	0.04	0.09	POFF 113485	
OTHERS-EACH: .05 MAX. OTHERS TOTAL: .15 MAX. AL REMAINDER											
All material contained in this lot was cast and manufactured in the USA											
105812 105813 105814 105815 RECEIVED MAR 7 6 2019											
P-860-1550 REVISED: 01 2018											

From: TK Materials CA, Ltd.

Cust. E T M INDUSTRIES INC

CstAr 105812/3/4/5

Wgt.: 1,356.421 LB

Del.: 2406628801

CstOr 113485

Date 03/22/2019





Constellium Rolled Products
Ravenswood, LLC

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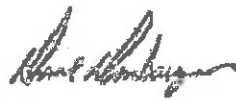
COPPER & BRASS SALES, INC.

5 STERLING DRIVE
WALLINGFORD CT
06492
US

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COPPER & BRASS SALES

PO BOX 5116
SOUTHFIELD MI
48086
US

COPPER3BR		110742733		2984F		INCLUSION		Serial:20190305-0110742733		Pg 4of4	
CUSTOMER PURCHASE ORDER NO. & ITEM 5400430916-R05						Constellium ORDER NO. 288528					
ALLOY 7060	CLAD	TEMPER T7451	GAUGE 4.50000 in 114.30 mm	WIDTH 60.50000 in 1,537 mm	LENGTH 144.50000 in 3,670 mm						
ITEM ORDERED SPEC PLATE, SAWED MILL FINISH											
CUSTOMER SPECIFICATION BMS 7-323E TYPE											
PART NUMBER ALFLR01070			B/L NUMBER 114339			DATE SHIPPED 03/05/2018					
WT. SHIPPED 8090.000 LB			NO. OF PIECES 000002			GOVT. CONTRACT NO. GLOBID					
CERTIFICATION "Constellium Rolled Products, hereby certifies that metal shipped under this order has been inspected and found in conformance with the requirements of the applicable specifications as indicated herein. Any warranty is limited to that shown on Constellium Rolled Products' standard General Terms and Conditions of Sales. Test reports are on file, subject to examination." Constellium Rolled Products Ravenswood, LLC 859 Century Road P O BOX 68 RAVENSWOOD, WV 26184 USA  Dave Dunbar - Laboratory Manager											
QUALITY TEXTS: Constellium Rolled Products Ravenswood, LLC (Constellium) certifies that all metals and materials supplied are in compliance with European Union Directives 2002/95/EC and 2011/65/EU. Constellium further certifies that a copy of these directives, which provides restrictions on the use of certain hazardous substances (RoHS) in electrical and electronic equipment, have been received and read in their entirety. Constellium understand and agrees, as a supplier that it is responsible for meeting the requirements of the RoHS and RoHS2 directives. 113485 105812 105813 105814 105815 RECEIVED 4-7-2018											
THIS TEST REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF THE LABORATORY OR AUTHORIZED QUALITY DELEGATE. THE RECORDING OF FALSE, FICTITIOUS, OR FRAUDULENT STATEMENTS OR ENTRIES ON THE CERTIFICATE MAY BE PUNISHED AS A FELONY UNDER FEDERAL LAW. CHEMISTRY BY OES: ARKSPARK CHEMISTRIES REPORTED IN PERCENTAGE BY WEIGHT WHEN FRACTURE TOUGHNESS TEST REQUIRED, TESTED PER ASTM E398. WHEN SMOOTH FATIGUE TESTED, TESTED PER ASTM E486. WHEN TENSILE TEST REQUIRED, TESTED PER ASTM E8: B557 DUNS Number: 090370143; CAGE Code: 1YWLG 100% Type I (Immersion sonic) used when ultrasonic inspection performed. Mercury is not a normal contaminant in aluminum alloys and neither mercury nor any of its compounds were utilized in the manufacture of our product. P-860-155D REVISED: Q1 2018											

From: TK Materials CA, Ltd.

Cust. E T M INDUSTRIES INC

CstAr 105812/3/4/5

Wgt.: 1,356.421 LB

Del.: 2406628801

CstOr 113485

Date 03/22/2019





thyssenkrupp Materials NA, 4700 chemin du Bois-Franc, Saint-Laurent, QC H4S 1A7

DELIVERY NOTE

E T M INDUSTRIES INC
310 HALL AVE
RENFREW ON K7V 2S5



DATE: 01/29/2019
DOC. NO: 2406513262*
BOL. NO: 2406513262
ORDER NO: 1405945083
YOUR P/O: 113485
CUSTOMER NO: 10056273
Route: 303UB
CONTACT: Lynn Philibert
TEL: 514-789-1660
FAX: 514-745-2968
EMAIL: lynn.philibert@thyssenkrupp.com

MTR'S AND COFC'S REQUIRED WITH EVERY SHIPMENT

EMAIL TO JLOWE@ETMINDUSTRIES.ON.CA

MUST INCLUDE THE FOLLOWING INFORMATION:
COMPANY NAME, SALES ORDER#, P.O.#, ITEM#, AND
DESCRIPTION OF PRODUCT &
SPECIFICATIONS (IE ASTM SPECS)

DO NOT CHARGE ENERGY SURCHARGE (JUNE 2011)

> CLOSE AT NOON ON FRIDAY <

Client: E T M INDUSTRIES INC Renfrew, ON K7V 4E7, CA

Deliveries are carried out for your account and risk acc. to our Gen. Terms & Cond. of Delivery and Payment.

ITEM	DESCRIPTION	NET QTY1 / QTY2	PACKAG
0010	ALFLR03133		1009459540
	6061 Aluminum T651 Plate	20 PC	
	4.50000 (+.145-0) X Width 7.3750 +.1250 X Length 13.2500 +.1250		
	Plate Sawing - Standard	896 lb	
	Actual Chemistry/Act. Physical		
	Standard Packaging		
TAGNUM	QTY	UOM VENDOR	VENDPO HLOT PCS -- COM
1014694910	20	PC THYSSENKR	5400432127 9418314 20
SAE AMS 4027/N; ASME SECTION II B SB-209/2010; ROHS COMPLIANT; ASTM B209 2014			
Total Gross Weight			931.000 lb

All items, not declared as partial delivery, are final quantities.

Delivery Terms: PPD gem. Incoterms 2000 Prepaid PREPAID

105812 - 1ea.
105813 - 9
105814 - 10.

DART

RECEIVED

JAN 29 2015



thyssenkrupp Materials NA, 4700 chemin du Bois-Franc, Saint-Laurent, QC H4S 1A7

DELIVERY NOTE

E T M INDUSTRIES INC
310 HALL AVE
RENFREW ON K7V 2S5

DATE: 01/29/2019
DOC. NO: 2406513262 *
BOL. NO: 2406513262
ORDER NO: 1403945083
YOUR P/O: 113485
CUSTOMER NO: 10056273
Route: 303UB
CONTACT: Lynn Philibert
TEL: 514-789-1660
FAX: 514-745-2968
EMAIL: lynn.philibert@thyssenkrupp.com

CERTIFICAT DE CONFORMITÉ/CERTIFICATE OF COMPLIANCE

*thyssenkrupp Matériaux NA certifie que le matériel décrit ci-dessus est conforme aux dessins ou spécifications exigés sur le bon de commande et qui sont en vigueur à la date où la commande a été acceptée./ thyssenkrupp Materials NA certifies that the material described above is in accordance with the drawings or specifications called for on said order that are current on the date order was accepted.

*Nous certifions que le document reproduit ici est une copie conforme du rapport fourni par le fournisseur du matériel où les données résultent de l'analyse faite par un laboratoire qualifié/ We certify that the document reproduced here is true to the report provided by the equipment supplier where the data are the result of analysis by a qualified laboratory.

David Noordine - Director of Quality Assurance

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105813
105814

RECEIVED

JAN 29 2019





CERTIFIED TEST REPORT
Constellium Rolled Products
Ravenswood, LLC

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COPPER & BRASS-TMX DIVISION

5450 E. HOME
FRESNO CA
93727
US

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COPPER & BRASS SALES

PO BOX 5116
SOUTHFIELD MI
48066
US

COPPER&BR		110646999	4061	INCLUSION		Serial:20180418-0110646999		Pg 1 of 3
CUSTOMER PURCHASE ORDER NO. & ITEM 5400389193						Constellium ORDER NO. 241350		CERTIFICATION "Constellium Rolled Products, hereby certifies that metal shipped under this order has been inspected and found in conformance with the requirements of the applicable specifications as indicated herein. Any warranty is limited to that shown on Constellium Rolled Products' standard General Terms and Conditions of Sales. Test reports are on file, subject to examination." Constellium Rolled Products Ravenswood, LLC 558 Century Road P.O. BOX 68 RAVENSWOOD, WV 26164 USA  Dave Dunbar - Laboratory Manager
ALLOY 6061	CLAD	TEMPER T651	GAUGE 4.50000 in 114.30 mm	WIDTH 80.50000 in 1,537 mm	LENGTH 144.50000 in 3,670 mm			
ITEM ORDERED SPEC PLATE, SAWED MILL FINISH								
CUSTOMER SPECIFICATION ASTM B209-14								
PART NUMBER ALFLR03133			B/L NUMBER 98085		DATE SHIPPED 04/18/2018			
WT. SHIPPED 15625.000 LB		NO. OF PIECES 000004		GOVT. CONTRACT NO.				
ALL LOTS ON THIS CERTIFICATION ALSO CONFORM TO THE FOLLOWING REQUIREMENTS:								
AMS 4027N AMS QQ-A-250/11A ASME SB209-15 Load Details								
Package	Net Lbs	Kg	Lot	Piece	Serial	Parent Lot		
1001761390	3,905.000	1,771.277	9418314	01				
1001761394	3,905.000	1,771.277	9418314	02				
1001761395	3,905.000	1,771.277	9418314	03				
1001761411	3,910.000	1,773.545	9418313	03				
Lot: 9418314 (See test results below)								
Tensile - Room Temperature (US)								
		Ultimate (KSI)		Yield (KSI)		Elongation (%)		Report
Direction	Tests	Min	Max	Min	Max	Min	Max	
LT	02	47.2	47.9	42.6	42.8	11.5	12.0	
Tensile - Room Temperature (SI)								
		Ultimate (N/MM2)		Yield (N/MM2)		Elongation (%)		Report
Direction	Tests	Min	Max	Min	Max	Min	Max	
LT	02	325	326	294	295	11.5	12.0	
P-980-1550 REVISED: 01 2018								

From: ThyssenKrupp Materials NA
Cust. THYSSENKRUPP MATERIALS CA LTD Del.: 2406462242
CstAr CstCr 5400432127
Wgt.: 3,905 LB Date 01/04/2019



RECEIVED

JAN 23 2019

From: TK Materials CA, Ltd.
Cust. E T M INDUSTRIES INC Del.: 2406513262
CstAr CstOr 113485
Wgt.: 896 LB Date 01/28/2019





CERTIFIED TEST REPORT
Constellium Rolled Products
Ravenswood, LLC

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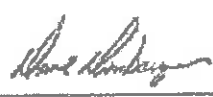
COPPER & BRASS-TMX DIVISION

5450 E. HOME
FRESNO CA
93727
US

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COPPER & BRASS SALES

PO BOX 5116
SOUTHFIELD MI
48066
US

COPPER&BR		110646895		4061		INCLUSION		Serial:20180418-0110646895		Pg 2 of 3					
CUSTOMER PURCHASE ORDER NO. & ITEM 5400389193						Constellium ORDER NO. 241350									
ALLOY 6061		CLAD		TEMPER T651		GAUGE 4.50000 in 114.30 mm		WIDTH 60.50000 in 1,537 mm		LENGTH 144.50000 in 3,670 mm					
ITEM ORDERED SPEC PLATE, SAWED MILL FINISH						CERTIFICATION "Constellium Rolled Products, hereby certifies that metal shipped under this order has been inspected and found in conformance with the requirements of the applicable specifications as indicated herein. Any warranty is limited to that shown on Constellium Rolled Products' standard General Terms and Conditions of Sale. Test reports are on file, subject to examination." Constellium Rolled Products Ravenswood, LLC 859 Century Road P.O. BOX 68 RAVENSWOOD, WV 26164 USA  Dave Dunbar - Laboratory Manager									
CUSTOMER SPECIFICATION ASTM B209-14				PART NUMBER ALFLR03133								B/L NUMBER 98065		DATE SHIPPED 04/18/2018	
WT. SHIPPED 16625.000 LB				NO. OF PIECES 000004								GOVT. CONTRACT NO.			
Chemistry (Actual)															
Core						SI	FE	CU	MN	MG	CR	ZN	TI	ZR	
						0.89	0.47	0.29	0.05	1.04	0.20	0.05	0.08	0.00	
OTHERS-EACH: .05 MAX. OTHERS TOTAL: .15 MAX. AL REMAINDER															
All material contained in this lot was cast and manufactured in the USA															
Lot: 9418313 (See test results below)															
Tensile - Room Temperature (US)															
				Ultimate (KSI)		Yield (KSI)		Elongation (%)		Report					
Direction		Tests		Min	Max	Min	Max	Min	Max						
LT		02		46.8	47.2	42.9	42.6	12.0	12.5						
Tensile - Room Temperature (SI)															
				Ultimate (N/MM2)		Yield (N/MM2)		Elongation (%)		Report					
Direction		Tests		Min	Max	Min	Max	Min	Max						
LT		02		323	325	292	293	12.0	12.5						
P.880-1550 REVISED: 01/2018															

PO#
113485
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105814

From: ThyssenKrupp Materials NA
Cust. THYSSENKRUPP MATERIALS CA LTD
CstAr
Wgt.: 3,905 LB

Del.: 2406462242
CstOr 5400432127
Date 01/04/2019



RECEIVED

JAN 29 2019

From: TK Materials CA, Ltd.
Cust. E T M INDUSTRIES INC
CstAr
Wgt.: 896 LB

Del.: 2406513262
CstOr 113485
Date 01/28/2019





CERTIFIED TEST REPORT
Constellium Rolled Products
Ravenswood, LLC

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COPPER & BRASS-TMX DIVISION

5450 E HOME
FRESNO CA
93727
US

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COPPER & BRASS SALES

PO BOX 5118
SOUTHFIELD MI
48065
US

COPPER&BR		110846999		4051		INCLUSION		Serial:20180418-0110846999		Pg 3of3																					
CUSTOMER PURCHASE ORDER NO. & ITEM 5400389183						Constellium ORDER NO. 241350																									
ALLOY 6061		CLAD		TEMPER T651		GAUGE 4.50000 in 114.30 mm		WIDTH 80.50000 in 1,537 mm		LENGTH 144.50000 in 3,670 mm																					
ITEM ORDERED SPEC PLATE, SAWED MILL FINISH																															
CUSTOMER SPECIFICATION ASTM B209-14																															
PART NUMBER ALFLR03133				B/L NUMBER 98065				DATE SHIPPED 04/18/2018																							
WT. SHIPPED 15825.000 LB				NO. OF PIECES 000004				GOVT. CONTRACT NO.																							
CERTIFICATION "Constellium Rolled Products, hereby certifies that metal shipped under this order has been inspected and found in conformance with the requirements of the applicable specifications as indicated herein. Any warranty is limited to that shown on Constellium Rolled Products' standard General Terms and Conditions of Sales. Test reports are on file, subject to examination." Constellium Rolled Products Ravenswood, LLC 658 Century Road P.O. BOX 68 RAVENSWOOD, WV 26154 USA <i>Dave Durbarger</i> Dave Durbarger - Laboratory Manager																															
Chemistry (Actual)																															
<table border="1"><thead><tr><th></th><th>SI</th><th>FE</th><th>CU</th><th>MN</th><th>MG</th><th>CR</th><th>ZN</th><th>TI</th><th>ZR</th></tr></thead><tbody><tr><td>Core</td><td>0.69</td><td>0.47</td><td>0.29</td><td>0.05</td><td>1.04</td><td>0.20</td><td>0.05</td><td>0.05</td><td>0.00</td></tr></tbody></table>													SI	FE	CU	MN	MG	CR	ZN	TI	ZR	Core	0.69	0.47	0.29	0.05	1.04	0.20	0.05	0.05	0.00
	SI	FE	CU	MN	MG	CR	ZN	TI	ZR																						
Core	0.69	0.47	0.29	0.05	1.04	0.20	0.05	0.05	0.00																						
OTHERS-EACH: .05 MAX. OTHERS TOTAL: .15 MAX. AL REMAINDER																															
All material contained in this lot was cast and manufactured in the USA																															
QUALITY TEXTS: Constellium Rolled Products Ravenswood, LLC (Constellium) certifies that all metals and materials supplied are in compliance with European Union Directives 2002/95/EC and 2011/65/EU. Constellium further certifies that a copy of these directives, which provides restrictions on the use of certain hazardous substances (RoHS) in electrical and electronic equipment, have been received and read in their entirety. Constellium understand and agrees, as a supplier that it is responsible for meeting the requirements of the RoHS and RoHS2 directives.																															
THIS TEST REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF THE LABORATORY OR AUTHORIZED QUALITY DELEGATE. THE RECORDING OF FALSE, FICTITIOUS, OR FRAUDULENT STATEMENTS OR ENTRIES ON THE CERTIFICATE MAY BE PUNISHED AS A FELONY UNDER FEDERAL LAW. CHEMISTRY BY OES; ARKSPARK CHEMISTRIES REPORTED IN PERCENTAGE BY WEIGHT WHEN FRACTURE TOUGHNESS TEST REQUIRED, TESTED PER ASTM E399 WHEN TENSILE TEST REQUIRED, TESTED PER ASTM E8; E557 DUNS Number: 060570149; CAGE Code: 1YWLS Mercury is not a normal contaminant in aluminum alloys and neither mercury nor any of its compounds were utilized in the manufacture of our product. "END OF CERTIFICATION"																															
P-NR0-1350, REVISED: 01/2018																															

From: ThyssenKrupp Materials NA

Cust. THYSSENKRUPP MATERIALS CA LTD

CstAr

Wgt.: 3,905 LB

Del.: 2406462242

CstCr 5400432127

Date 01/04/2019

Thomas Sanchez
RECEIVED

JAN 29 2019

From: IK Materials CA, Ltd.

Cust. E T M INDUSTRIES INC

CstAr

Wgt.: 896 LB

Del.: 2406513262

CstOr 113485

Date 01/28/2019

Thomas Sanchez